

THE POLITICAL ECONOMY OF ICT GROWTH AND DEVELOPMENT IN INDIA

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The Indian National Association for Software and Services Companies (NASSCOM) in 2007 had the following statement on their website:

The country is at an important juncture in its history, having completed the transition from an agrarian economy to a fully-fledged, first-world economy, operating at the leading edge of contemporary technology. A key element in taking the country forward and maintaining its growth momentum will be the provision of a highly skilled and competent global workforce

(www.nasscom.org).

The pertinence of Adiga's win is that India has been the poster boy for the past two decades of globalisation; Bono told me once that he dreamed of sub-Saharan Africa finding a way to emulate India's success. But its model of growth imported from the US was based on credit-fuelled consumerism for a fifth of the population while state investment in health, education, agriculture, infrastructure - crucial components of sustainable development - were cut back.

<http://www.guardian.co.uk/commentisfree/2008/oct/20/globalisation-economy-imf-india-africa>

[Madeleine Bunting](#) [The Guardian](#),
Monday October 20 2008

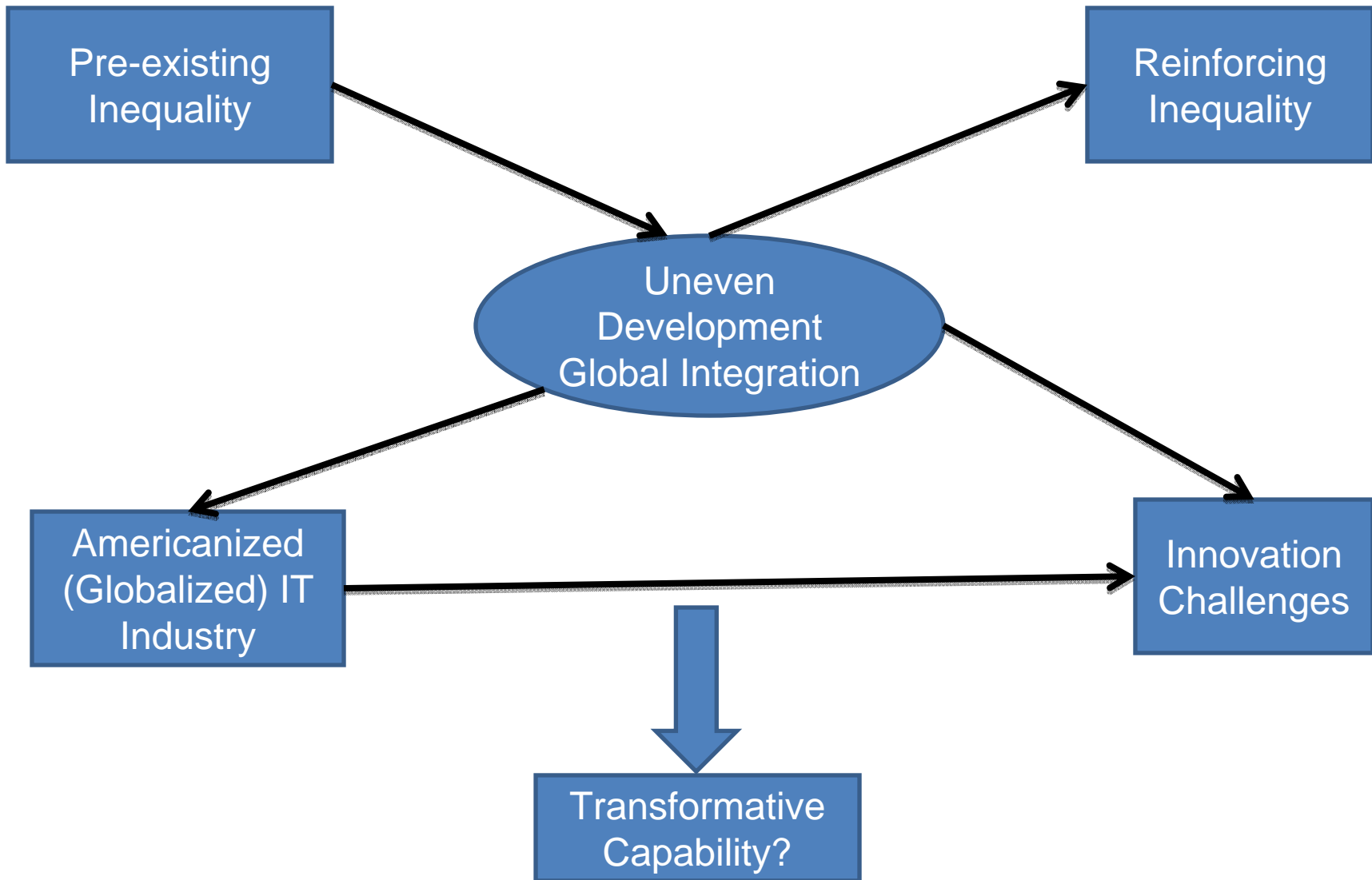
Structural Changes in the Indian Economy, Sectoral Contribution to GDP (%) 1950-2007

	Agriculture	Manufacturing	Transport., Fin, Pub Adm.
1950-51	59.19	13.29	28.05
1960-61	54.75	16.61	29.02
1970-71	48.12	19.91	32.18
1980-81	41.82	21.59	36.59
1990-91	34.92	24.49	40.60
2000-01	26.25	24.90	48.85
2006-07#	20.55	24.71	54.74

Source: Government of India, Ministry of Finance (2004:S-5, 2007: A-5).

Notes: All based on 1993-94 prices except for 2006-07, which is based on 1999-2000 prices

#quick estimates

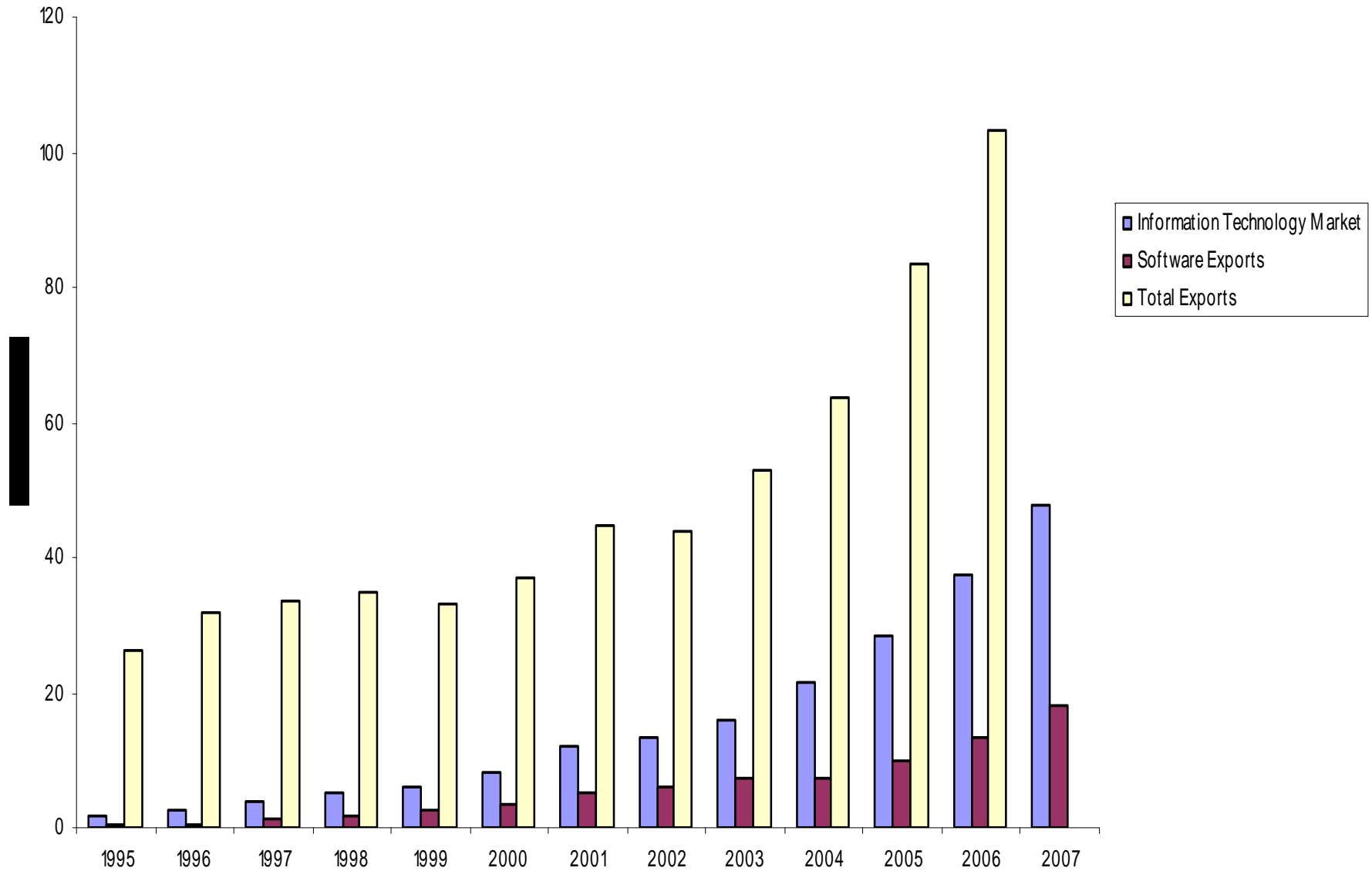


Mechanisms of Transformative Capability through Uneven Growth Rates



- **Direct effects**
 - Employment
 - Income
 - Education
 - Interlocking dimensions of social well-being
- **Indirect effects**
 - Pull effect (trickle down)
 - Multiplier effect
 - Interlocking dimension of social well-being
- **Exclusionary effects**
 - Interlocking dimension of deprivation

Globalization and Expansion of India's IT Industry



Source: NASSCOM, various years, Ministry of Finance, Government of India, various years.

Key Highlights of the IT-ITES sector performance
IT Industry-Sector-wise break-up

USD billion	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008E
IT Services	10.4	13.5	17.8	23.5	31.0
<i>-Exports</i>	7.3	10.0	13.3	18.0	23.1
<i>-Domestic</i>	3.1	3.5	4.5	5.5	7.9
ITES-BPO	3.4	5.2	7.2	9.5	12.5
<i>-Exports</i>	3.1	4.6	6.3	8.4	10.9
<i>-Domestic</i>	0.3	0.6	0.9	1.1	1.6
Engineering Services and R&D, Software Products	2.9	3.9	5.3	6.5	8.5
<i>-Exports</i>	2.5	3.1	4.0	4.9	6.3
<i>-Domestic</i>	0.4	0.7	1.3	1.6	2.2
Total Software and Services Revenues	16.7	22.6	30.3	39.5	52.0
<i>Of which, exports are</i>	12.9	17.7	23.6	31.3	40.3
Hardware	5.0	5.9	7.1	8.5	12.0
Domestic Sales	n.a.	5.1	6.5	8.0	11.5
Total IT Industry (including Hardware)	21.6	28.4	37.4	48.0	64.0

Source: NASSCOM, Total may not match due to rounding off

India's Software Exports to Japan

	IT Services Spending (US\$ billion)	India's Exports (US\$ million)	India's Market Share (%)	Relative Dependence Ratio	Share in India's Exports
N. America	171.1	6,685	3.92	1.4	67.7 (US 61.4)
W. Europe	109.6	2,103	1.92	0.7	21.3 (UK 17.8)
Japan	34.9	193	0.55	0.2	2.0
Latin America & Rest of the World	17.5	583	3.33	1.2	5.9 (C. Eur.: 12.3)
Asia-Pacific	16.0	311	1.94	0.7	3.2 (APAC 6.4)
TOTAL	349.1	9,875	2.82		100.0

Source: NASSCOM, www.nasscom.org 9/8/2004

Note: Relative dependence measures the region's share in Indian exports vis-à-vis the region's share in world IT services spending.

NASSCOM 2008: IT/ITES Industry



- "Unleashed the power of the Indian middle class" and entrepreneurs of modest backgrounds
- 5.2% of GDP
- Largest employer in the organized sector
- \$40 billion export earnings
- Direct employment expected at 2 million
- Indirect employment: A multiplier of 4! (mostly less educated)
- Economic multiplier: about 2
- Increased opportunities for women
- Balanced regional development
- Demand for IT professionals: 430,000 and indirect demand 1.7 million (will it materialize and can supply keep up?)

Limits to Transformation



- **Regional concentration of IT Industry (Bangalore, Chennai, Hyderabad, NCR)**
- **Four southern states had 51% and 61% engineering and MCA degree granting institutions**
- **Hence spillovers likely to be regional**
- **Multiplier effect is small because of skill bias:**
 - Tertiary technical education
 - Access to education
 - Means to education
- **Transfer of benefits spatially through emigration (raises the question of a convoluted form of imperialism)**

Uneven Development of the Indian Economy (Annual % Changes)

	Annual % Change in IT Market	Annual % Change in Software Exports	Annual % Change in Exports	Annual Growth rate of GNP (current prices)	Annual Growth rate of Per Capita Net National Product	Annual % Change in General Index of Indus. Prod.	Annual % Change in Index Numbers of Agri. Prod. (all commodities)
1995-96	32.8	54.2	20.8	17.2	14.6	13.9	-2.7
1996-97	46.2	45.9	5.3	16.1	13.9	6.1	9.3
1997-98	33.5	59.9	4.6	11.9	9.9	6.7	-5.9
1998-99	16.5	47.8	-0.5	15.0	13.3	4.1	1.3
1999-00	39.1	52.4	10.5	10.3	8.5	6.7	-0.6
2000-01	45.7	56.9	21.0	7.9	6.0	5.0	-6.3
2005-06	27.8	32.2*	29.3*	8.5#	6.8#	7.0**	19.1##

Sources: Calculated from NASSCOM 2002, 2006, and Government of India,
Ministry of Finance, Economic Survey, various years.

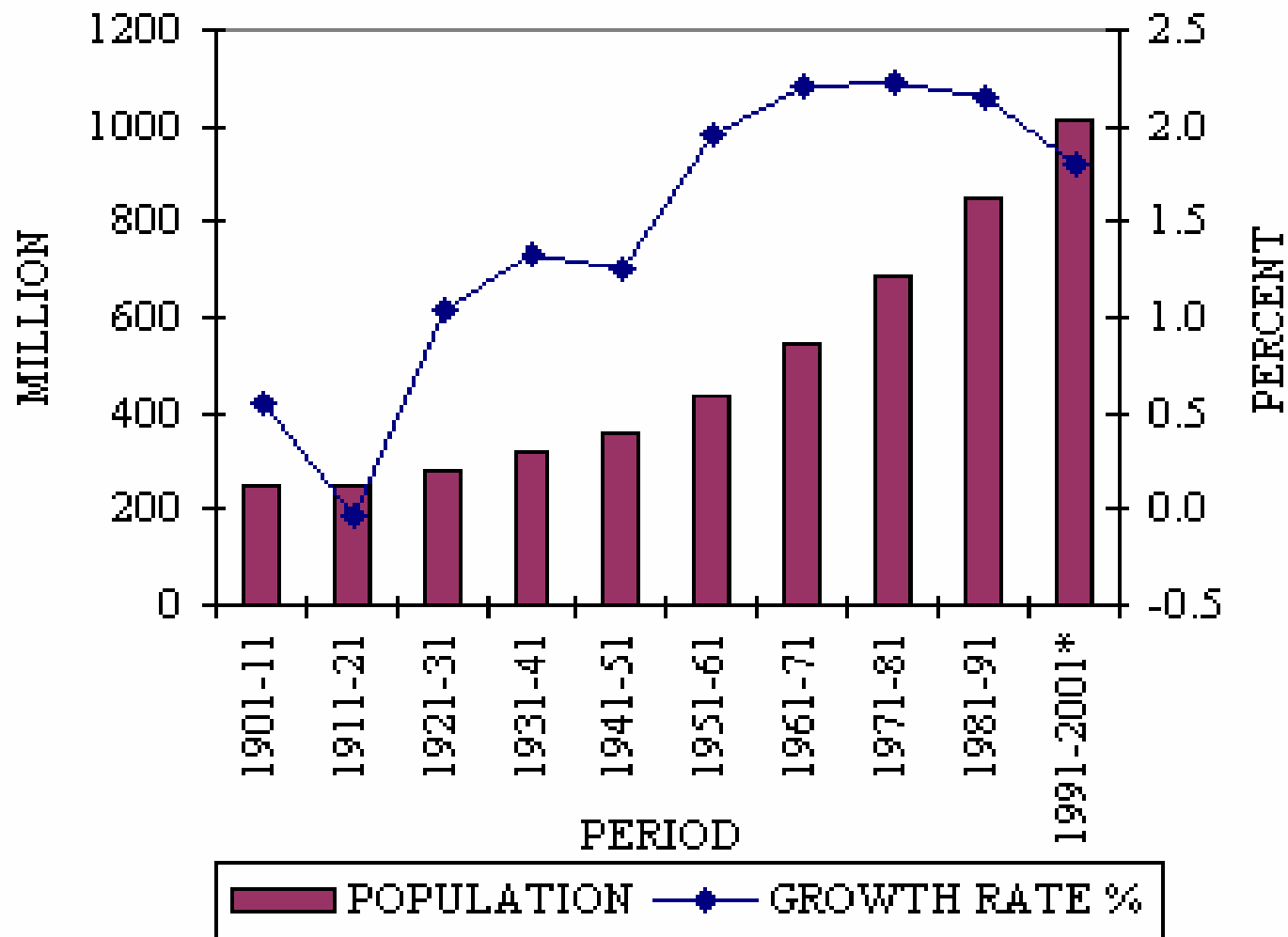
Notes: * 2004-05; # 2002-03; ** 2003-04; ##2003-04 provisional.

Employment and Unemployment in million person years

	Million 1983	Million 1993-94	Million 1999-00	Million 2004-05	Growth p.a. (%)		
					1983-1993-94	1993-94-	1999-00-
Population	718.10	893.68	1005.05	1092.83	2.11	1.98	1.69
Labour force	263.82	334.20	364.88	419.65	2.28	1.47	2.84
Workforce	239.49	313.93	338.19	384.91	2.61	1.25	2.64
Unemp. Rate (%)	9.22	6.06	7.31	8.28			
No. Of unemp.	24.34	20.27	26.68	34.74			

Source: Economic Survey (2007-08: 248)

POPULATION OF INDIA



Source:- Registrar General India

India's Demographic Dilemma

	Urban %
1950	17.3
1960	18.0
1970	19.8
1980	23.1
1990	25.5
2000	27.7
2010	28.7 (373 million)
2020	32.2
2030	41.4 (538 million)

Inequality in India: GINI Coefficient

1983 Rural	1983 Urban	1993-94 Rural	1993-94 Urban	2004-05 Rural	2004-05 Urban
0.298	0.330	0.286	0.344	0.305	0.376

Poverty Ratios

1993-94	2004-05
35.86%	27.47%
304 million	283 million

Source: Debroy and Bhandary, 2007

Employment in the Indian Public and Private Sectors (in millions)

	Public Sector	Private Sector	Total
1981	15.5 (68)	7.4 (32)	22.9
1991	19.1 (71)	7.7 (29)	26.8
1995	19.5 (71)	8.1 (29)	27.6
2000	19.3 (69)	8.6 (31)	27.9
2001	19.1 (69)	8.7 (31)	27.8
2002	18.8 (69)	8.4 (31)	27.2
2003	18.6 (69)	8.4 (31)	27.0
2004	18.2 (69)	8.2 (31)	26.4
2005	18.0 (68)	8.5 (32)	26.5

Source: Government of India, Ministry of Finance, 2006, 2007.

Notes: figures in parentheses are percentages.

NASSCOM - HR INITIATIVES (www.nasscom.in,

While India currently boasts one of the world's largest, most qualified pools of scientific and engineering manpower, the NASSCOM-McKinsey Report 2005 forecasts that India may face a potential shortage of semi-skilled workforce in the next decade or so, particular in ITES-BPO industry, if necessary measures are not taken by various stakeholders in the industry.

Currently, only about 25% of technical graduates and 10-15% of general college graduates are suitable for employment in the offshore IT and BPO industries, respectively. As countries from around the world enter the offshore market; it is necessary that India must improve the quality and skills of its workforce.

<http://www.nasscom.in/upload/5216/HR%20initiatives%20July%202006.pdf>

National Sample Survey Census data for 2001 analyzed by Mohanty (2006) in D'Costa (in progress):

- Significant difference in inequality between rural and urban India (see also NCAER, various)
- Upper caste Hindus (UCH) in rural India tend to be mostly self-employed in agriculture (owners of land, (60%) compared to scheduled castes (SC), scheduled tribes (ST), and other backward classes (OBCs) (see also Bardhan 2006: 1394, 1398).
- In urban India UCH mostly tend to have “regular” jobs (56%), as opposed to self-employment or casual worker, compared to the historically underprivileged groups.

- Literacy rate: similar forms of inequality between urban and rural India and between different caste groupings. Thus for every 1,000 UCH persons aged seven and above, rural literacy for UCH was 817 compared to 466 and 422 for SC and ST respectively (Mohanty 2006: 3779).

- In urban areas the respective numbers stood at 966 (UCH), 662 (SC), and 700 (ST).

- Crudely extrapolating these numbers to the earlier decades when literacy rates as a whole were far lower and political rights for the underprivileged scant, the extent of persistent

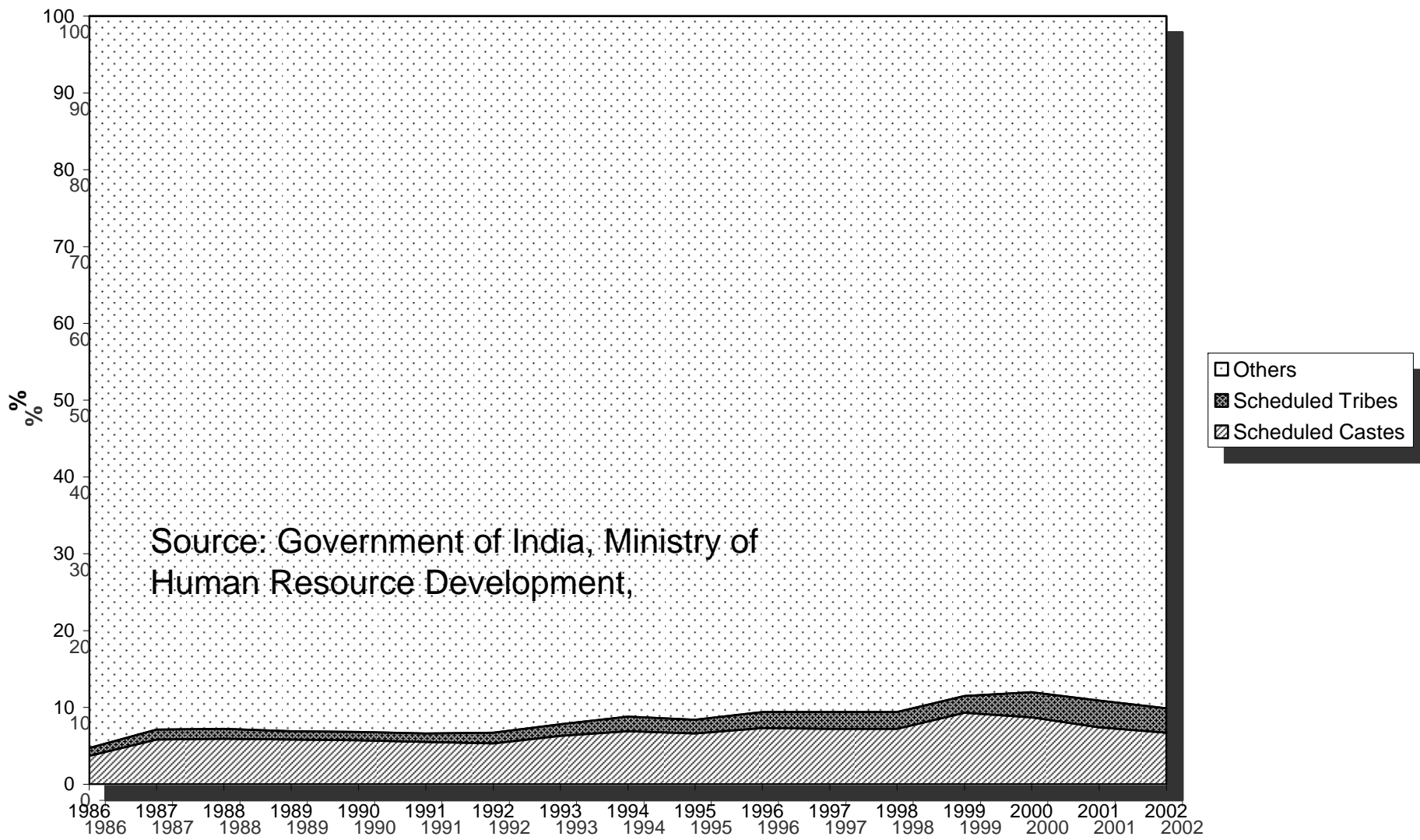
- However, the fact that there are more SC, ST, and OBCs literate today suggest that state programs directed toward their upliftment, imperfect and insufficient as they may be, are in the right direction.

- This inequality in basic education levels has the long term implication of access to higher education, a de facto requirement to enter some kind of formal tertiary training – technical or otherwise.

- Aside from the fact that mere basic literacy is a poor predictor of college entry, let alone successful employment in the modern professional world, we find that drop out rates among underprivileged groups to be considerably higher than UCH (Mohanty 2006: 3779, 3788), with rural areas as a whole having greater drop out rates than urban areas. This is brought out by the fact that social identities in urban areas are far less important than in rural areas and income determines the prospects for higher education (see Hasan and Mehta 2006).
- In urban areas underprivileged groups have far higher drop out rates, that is the share of literates who completed below or up to middle school education is high. In other words, at best, education was terminated at the middle school level, truncating potential advance toward high school and tertiary education.
- The drop out rates for ST (68%), SC (76%), and OBCs (68%) were far higher than UCH (35%) (Mohanty 2006: 3779).
- In parallel fashion, the completion rates for UCH were higher than other groups: 44% against 19% for ST, 12% for SC, and 16% for OBCs respectively.

- We can thus infer that urban-based upper caste Hindus, who are also well-represented in the higher income groups, tend to benefit most from the existing tertiary educational system both in terms of access and graduation outcomes. This inference is echoed in Hasan and Mehta (2006: 3792), where they show that 70% urban-based “forward classes” (or roughly UCH as per Mohanty 2006) complete high school and are thus potentially available for college education. This contrasts with roughly 2%, 7%, and 23% for ST, SC, and OBCs respectively.

Figure 1: Share of Underprivileged Groups in Indian Science and Engineering Enrollments (bachelors level)



USD billion	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008E
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Distortionary Effects of High Growth, Export-Dependent on Narrow Markets



- High wages (30%), high labor turnover (16-20%)
- Cut-throat competition with few local inter-firm collaborations
- Competition for talent between small, domestic and large foreign and domestic firms
- Expansion of education, quality problems as evident by investment in firm-specific training (one in four engineers employable)
- Emerging shortages of talent
- Erosion of faculty availability due to high salaries
- Few PhDs in engineering, internal brain drain
- Weak university ecosystem
- Inflationary pressures, especially on the poor in Bangalore etc., periodic Dutch disease type consequences

Indian Students and Technical Professionals in the US by Non-immigrant Visa Category (%) [Californization]

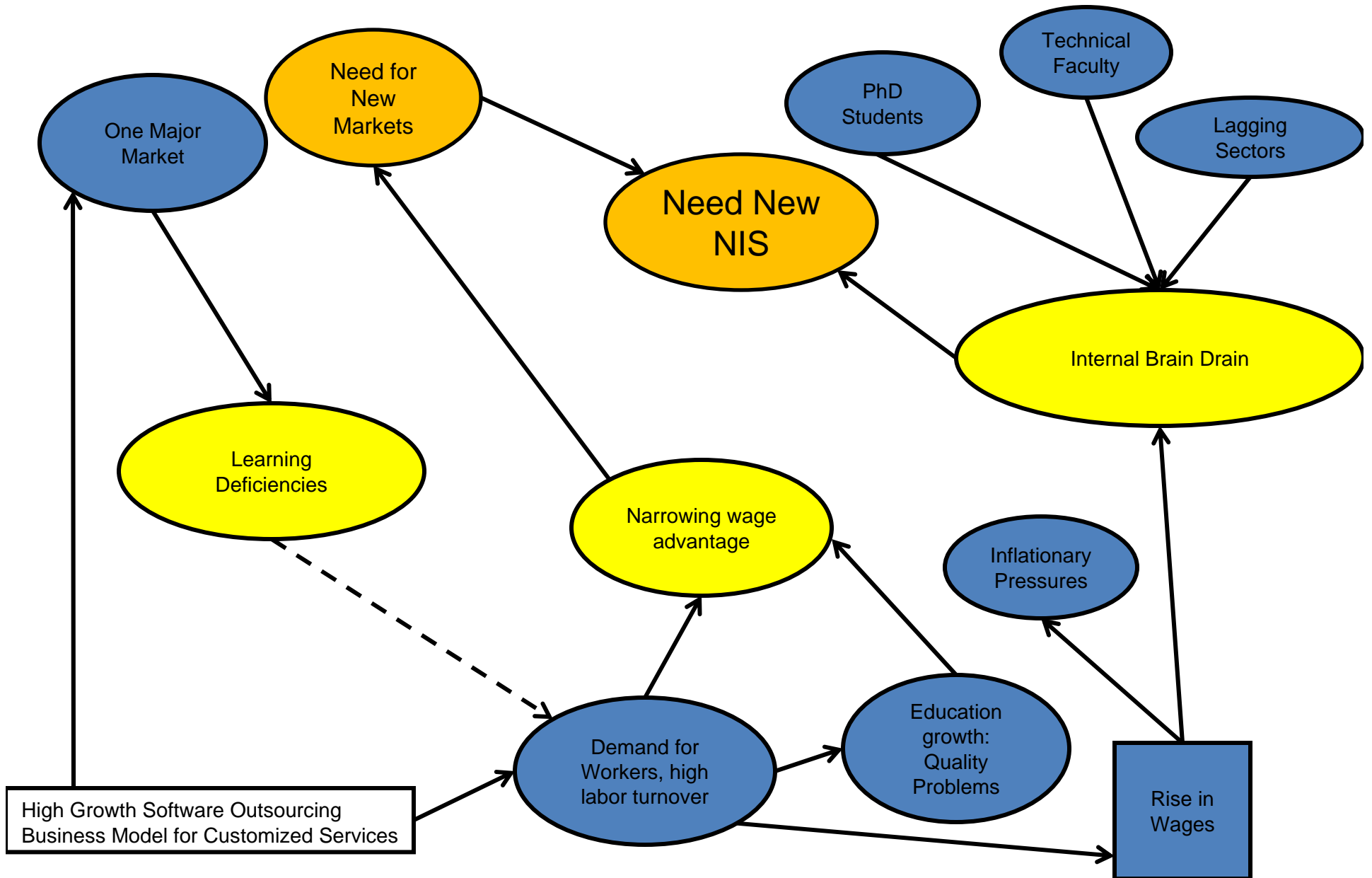
	Fiscal 1997			Fiscal 2006		
	F1 Visa	H1B Visa	L1 Visa	F1 Visa	H1B Visa	L1 Visa
Africa	4.2	3.1	1.6	4.5	2.2	1.6
Asia	55.8	59.2	40.7	64.7	70.7	60.7
China	4.5	4.0	8.3	10.3	7.0	2.6
Taiwan	5.6	1.8	0.8	6.1	1.9	..
India	4.0	39.3	4.4	9.6	47.9	43.8
Japan	13.2	3.6	19.5	8.6	2.8	7.0
South Korea	13.6	1.1	3.0	15.6	2.4	1.6
Europe	23.5	25.9	41.1	18.4	16.4	25.5
S. America	9.7	4.6	5.7	5.7	6.2	5.5
Grand Total (Nos.)	266,483	80,547	36,589	273,870	135,421	72,613

Source: US Department of State 2007, http://travel.state.gov/pdf/FY1997_NIV_Detail_Table.pdf, Accessed 6/13/2007 3:30 PM.

Notes: .. negligible share



Challenges to Indian Innovation



Concluding Remarks

- One key political economy question left out of the discussion is on the role of the state: suffice to say that the growth of the Indian IT industry **has not been** inspite of the government
- The glamour industry has done well and it has contributed to the wider economy but its dynamic is quite independent from the larger system, mainly because of a strong external link, almost unidirectional one
- To paraphrase a NYT journalist: the middle class has “checked out” into their gated communities of California style bungalows. It is single-mindedly engaged in pursuing its interest, excluding the larger India and rendering it invisible.

What then are the Alternative Development Policies?

Thank You!